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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/826,558	04/16/2004	Vladimir Lifshits	002139-013510US	2112

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EXAMINER

CHUO, TONY SHENG HSIANG

ART UNIT	PAPER NUMBER
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1795

MAIL DATE	DELIVERY MODE
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08/12/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/826,558	Applicant(s) LIFSHITS, VLADIMIR	
	Examiner Tony Chuo	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 April 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4-11 and 13-20 is/are pending in the application.
- 4a) Of the above claim(s) 13-19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4-11 and 20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. Claims 1, 4-11, and 13-20 are currently pending. Claims 2, 3, and 12 are cancelled. Claims 13-19 are withdrawn from further consideration as being drawn to a non-elected invention. The previous objection to the specification is withdrawn. The previous 112, 2nd paragraph rejection of claims 4, 5, and 8 is withdrawn. The amended claims do overcome the previously stated 102 rejection of claims 1, 4-8, and 20. However, upon further consideration, claims 1, 4-11, and 20 are rejected under the following new 103 rejection. This action is made FINAL as necessitated by the amendment.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claim 1, 4-11, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Woods et al (US 2002/0006535) in view of Haltiner, Jr. et al (US 2003/0235733).

The Woods reference discloses a method of operating an integrated power module that generates an anode exhaust gas including combustible components comprising: receiving the anode exhaust gas from the fuel cell "118" at an elevated

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temperature; quenching the temperature of the anode exhaust gas by transferring heat from the anode exhaust gas to the cathode gas (air flow) before the cathode gas is added to the anode exhaust gas, wherein transferring heat comprises forming first and second flow paths "134" & "114" for the anode exhaust gas and the air flow and separating the flow paths by a flexible heat transfer barrier wall "126" to transfer heat between the anode exhaust gas and the air flow to form a cooled anode exhaust gas; adding air flow to the cooled anode exhaust gas to form an oxidizable anode gas mixture inside the combustor "120"; catalytically oxidizing the oxidizable anode gas mixture to form an effluent; and heating the effluent by adding additional air and fuel to the combustor to generate additional heat (See paragraphs [0020],[0027],[0044]). It also discloses optimizing the performance of the integrated power module by controlling one or more parameters by directing through the one or more valves, conduits, or inlets at least one process enhancer such as but not limited to an oxygen-containing gas, a combustible fuel, water, carbon dioxide, or air (See paragraph [0045]). It also discloses flowing the anode exhaust gas into the fuel distribution zone "18" and through a perforated surface element "14" which inherently buffers the anode gas prior to adding air to compensate for temporal fluctuations in at least one of the proportion of combustible components in the anode gas and a temperature of the anode gas (See Figure 1B).

Examiner's note: It is inherent that length of the flow paths would be selected so that all portions of the mixture downstream of the flow paths would have a temperature that is below the auto ignition temperature of the combustible components in the anode

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gas because Woods et al discloses that the combustible components are catalytically oxidized only inside the combustor. In addition, by controlling the flow of inlet air and inlet fuel, the heat input to the air flow is selected to sufficiently maintain a temperature of the mixture at which the oxidizable component of the anode exhaust gas oxidizes in the combustor.

However, Woods et al does not expressly teach a step of flowing an effluent from the catalytic oxidizer to the fuel cell. The Haltiner reference discloses a step of flowing the effluent "115" from the afterburner "66" to a manifold surrounding stack "44" and "46" (See paragraph [0039]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Woods method of operating an integrated power module to include a step of flowing an effluent from the catalytic oxidizer to the fuel cell in order to more efficiently utilize the heat generated by the combustor to heat the fuel cell such as during start-up.

Response to Arguments

4. Applicant's arguments filed 4/7/08 have been fully considered but they are not persuasive.

The applicant argues that in Woods, there is no heat transfer between the anode gas and the incoming air 138 before the air and the gases are mixed. The examiner disagrees for the following reason. The Woods reference discloses quenching the temperature of the anode exhaust gas exiting the fuel cell by transferring heat from the

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anode exhaust gas to the inlet air 112 (See paragraph [0027]). This heat transfer is performed before the air from the cathode exhaust gas is mixed with the anode exhaust gas in the combustor. Therefore, the cathode exhaust gas that is added to the anode exhaust gas in the combustor is construed as the air that is added to the anode gas to form an oxidizable anode gas mixture.

The applicant further argues that Woods does not disclose heating the effluent during at least portions of the time when the fuel cell generates electricity. The examiner disagrees for the following reason. The Woods reference discloses generating additional heat in the combustor by adding air and fuel to the combustor (See paragraph [0044]). This step of generating additional heat in the combustor implicitly heats the effluent from the combustor because the effluent flows out of the combustor at a higher temperature.

The applicant further argues that Woods does not teach adding air to the anode gas. The examiner disagrees for the following reason. As stated above, the cathode exhaust gas that is added to the anode exhaust gas in the combustor is construed as the air that is added to the anode gas. Therefore, Woods does teach adding air to the anode gas.

The applicant further argues that Haltiner does not disclose or suggest to flow the anode gas through a heat exchanger where the gas heats incoming air and, "thereafter mixing the cooled anode gas and the air flow downstream of the flow paths to form a mixture" as required by claim 9. The Haltiner reference is relied upon for teaching the step of flowing the effluent from the combustor to the fuel cell. Therefore, the Haltiner

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reference is not required to disclose flowing the anode gas through a heat exchanger where the gas heats incoming air and, "thereafter mixing the cooled anode gas and the air flow downstream of the flow paths to form a mixture". As stated above, the Woods reference teaches exchanging heat between the anode exhaust gas and the incoming air and thereafter mixing the cooled anode exhaust gas with the cathode exhaust gas downstream to form a mixture in the combustor.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tony Chuo whose telephone number is (571)272-0717. The examiner can normally be reached on M-F, 9:00AM to 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TC

/Jonathan Crepeau/
Primary Examiner, Art Unit 1795